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This report describes selected urban-oriented research projects of New York University that are designed to draw on the city's resources to develop new knowledge for the improvement of urban society. The university's efforts to solve urban problems take 2 forms: (1) research leadership, directed at identifying and analyzing major problems and seeking solutions that can be offered to the community for application, and (2) research-related service to people. Through a combined health care and research program of the university's medical center, 60,000 children from the Lower East Side receive health care, and their medical and social records are maintained through electronic data processing. The center also treats patients suffering from alcoholism, oral cancer, and periodontal or gum diseases, and collects data for further study on the causes and cures for these illnesses. At least 10 projects on air pollution and 7 on water pollution were conducted in 1966. Social programs concentrate on poverty, slums, juvenile delinquency, and racial discrimination. The report also discusses how some studies have contributed to the improvement of public education, government finances, and teaching methods for public administrators at both city and state levels. Others examine reapportionment, criminal justice, and individual rights. In 1965 and 1966, these projects involved more than 900 faculty members and 1,100 graduate students, postdoctoral fellows, and technical assistants, at a total cost of $34,000,000. (WM)

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University Research and the City: A Report from the President of New York University

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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New York University
1967

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Foreword

Americans today are drawn to their large cities as centers of ideas and opportunities, of business and culture, of political and social life. At the same time they are repelled by the ugliness and decay, both physical and social, of large sections of them.

Few domestic questions are of greater consequence than which of these attitudes toward the metropolis shall prevail.

The idea of a civilized, ambitious nation rejecting its cities and leaving them to become jungles of deterioration is, of course, unthinkable—except that we have come very close to doing so. We have acted as though we found heaven in suburbia and have no further need for the cities. Yet, in reality, increasing numbers of ex-urbanites long for the more interesting and significant life of the city—if only it were "safe" and if they could afford it.

The plight of our cities frequently prompts the question, "What are our universities doing about the problems of city life?"

New York University, which has been serving New York City for 136 years, is making many contributions to the solution of urban problems. These contributions take two forms.

The first and most important is research leadership, directed at identifying and analyzing major problems and seeking solutions that can be offered to the community for application. This search for knowledge and understanding may take a biochemist to his laboratory, a political scientist to City Hall or Albany, an engineer (in a helicopter) to the smog-filled air above Manhattan.

The second contribution is a by-product of the first. It is service to people, related to research. Thus the clinics of the Medical and Dental Centers supply abundant data for analysis and experimentation and at the same time provide health care for thousands of men, women, and children.

In 1965-1966 New York University research involved the efforts of more than 900 faculty members and 1,100 graduate students, postdoctoral fellows, and technical assistants. The total cost of this research was $34,000,000.

The following pages describe some aspects of University research that are actual or potential contributions to New York City and its people and to the understanding and improvement of life in urban communities everywhere.

James M. Hester
President

Research and the Health of the Community

A notable example of the relationship of research to community health is a project conducted jointly by the University and the New York City Department of Health and Hospitals, under the direction of Dr. Saul Krugman, Chairman of the Department of Pediatrics at the Schools of Medicine.

Primarily this project explores the possibilities of making comprehensive health care available to all children in a district—in this case to the 60,000 children of the Lower East Side. For the first time, electronic data processing is being used to maintain medical and social records for all pediatric patients examined and treated in the area, assuring instant availability of any child's medical history. Dr. Krugman and others working on the project seek new ways to compile, store, and deliver such medical information, in a form that doctors can use and that a computer can absorb and read out when called on.

Cooperating divisions of the University include the College of Dentistry, which is making and recording a complete evaluation of the dental needs of large numbers of children; and the School of Engineering and Science, whose Computer Research Laboratory under Dr. Leo Tick is working out the data-processing problems involved.

Another project, now under consideration by the medical faculty, would develop experimentally a neighborhood clinic for walk-in patients in the Lower East Side as a satellite of Bellevue Hospital. It is estimated that 75 percent of the patients who would normally go to the hospital from the area can be dealt with satisfactorily at the clinic.

One objective of the experiment will be to test the effectiveness of the satellite clinic in relieving municipal hospitals of the tremendous patient loads now overwhelming their facilities in most large cities. Another possibility is to build into the program nonmedical community research and services from other University divisions such as the College of Dentistry, the Graduate School of Social Work, and the School of Education. The ultimate objective is creation of a cen-

A combined health care and research program of the New York University Medical Center offers comprehensive health service to some 60,000 children in the Lower East Side.

A "computer bank" stores complete medical and social records of all pediatric patients cared for in the project, so that any child's medical history can be made immediately available.

ter closely integrated with its neighborhood, providing significant community services of several kinds that can be related to University research and teaching.

Alcoholism and cancer

Alcoholism is a tragic and costly medical problem in large urban centers. At the Medical Center an alcoholism clinic has been operating since 1952. It not only treats alcoholics but provides data for research into the causes of alcoholism and experiments with new methods of cure. All aspects of the problem, both physical and psychological, are the concern of the clinic.

Among diseases affecting the mouth, cancer is a prime cause of death. Early diagnosis is imperative. Dentists, who see patients at routine intervals, are in an excellent position to detect early lesions. A demonstration project conducted by the Dental Center tested the usefulness of the "Pap smear" in oral cancer detection by asking New York City dentists to employ this technique in their offices. Results proved so successful that the technique has been adopted by the New York City Board of Health, which now offers this diagnostic service to all dentists in New York City.

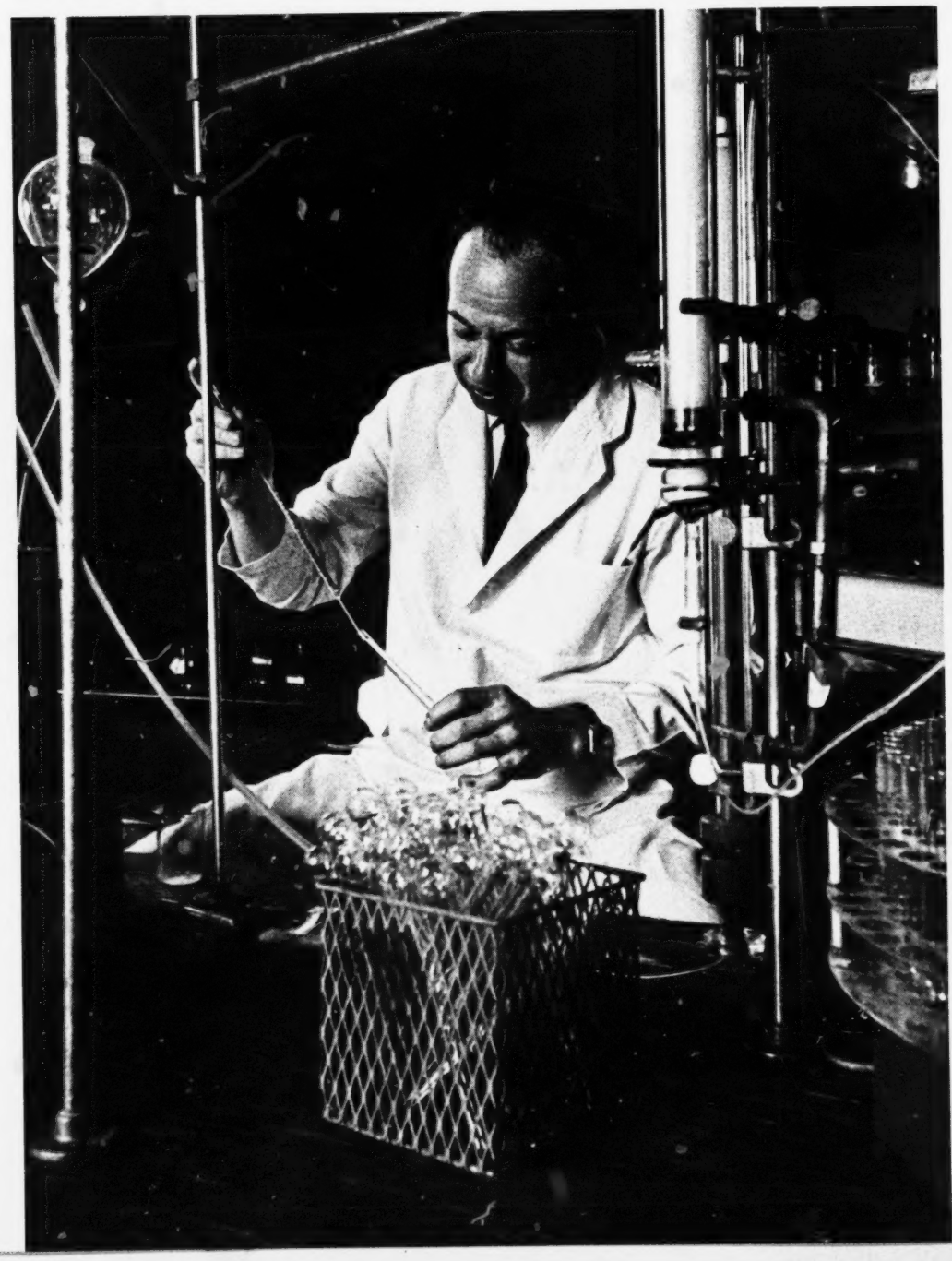
Occasionally, it is simply the numbers of people in a city as large as New York that make a particular research project possible. Because of a German measles epidemic a few years ago, the Medical Center is con-

ducting a study of birth defects suffered by babies born to mothers with the disease. With 350 children registered in this project, it may well be the definitive study of the problem.

The large number of patients seen daily at the Dental Center has made possible an extensive study of periodontal or gum diseases, which constitute the major cause of tooth loss in America. Directed by Dr. Sigmund Stahl and involving scientists from several divisions of the University, the research attempts to define responses of gum tissues to local injury and ultimately to improve the resistance of these tissues to future irritations.

The huge population of New York City provides many other challenges relating to the dental treatment of the handicapped. The child born with a cleft palate, the chronically ill unable to visit a dental office, the youngster with cardiac disease, all require equipment and technique especially designed for their dental care. The Dental Center staff is currently devising therapeutic approaches to the dental needs of children with cardiac disease at Irvington House, and of chronically ill patients at Goldwater Memorial Hospital. These research-related activities are a direct contribution to the total health of New York City.

At the Dental Center, research into periodontal disease (an inflammation of the gums) is based on findings from hundreds of patients cared for daily in Center clinics. Ultimate aim of research is to improve and simplify techniques of treatment.



Dr. Gilbert Stanton, biochemist in the College of Dentistry, analyzes amount of protein in a tissue sample of gum treated for periodontal disease. Change in protein content indicates rate of healing.

Research and Our Physical Environment

"Don't drink the water, and don't breathe the air," advised a popular satirist of modern American society last year, in a song of welcome to a foreign visitor.

As pollution has been a source of ill health and irritation to residents of New York and other large cities, so it has been a major source of research interest at New York University. During the past year at least ten research projects have been devoted to air pollution and seven to water pollution.

Toward fresh air

At the School of Engineering and Science a team of scientists, engineers, mathematicians, and specialists in electronic computing is conducting an extensive and detailed analysis of pollution and atmospheric conditions for a 2,500-square-mile area covering New York City, its suburbs, and nearby New Jersey.

The data are being used to build in a computer a mathematical model that in effect will be a functioning, three-dimensional model of the Greater New York atmosphere, its pollution input and the complex air circulation patterns that disperse, mix, carry, and sometimes concentrate it.

When refined, this model will be an invaluable laboratory tool with which to test, evaluate, and select the best and most effective clean air measures for long-range programs toward achieving and maintaining a clean environment. The project Director is Dr. Ben Davidson, Professor of Meteorology and Director of the Geophysical Sciences Laboratory.

A recent federal grant enabled the School to establish a five-year training program in air resources engineering, built upon more than 50 courses related to air pollution already offered in its Departments of Civil Engineering, Chemical Engineering, and Meteorology and at the Institute of Environmental Medicine. The objective is to train future engineers and scientists in the application of engineering, chemistry, and meteorology to the behavior and control of atmospheric pollutants. Graduate students enrolled form an important source of manpower for air pollution research.

A prototype smokeless incinerator, which has been in full-scale operation for more than a year, was developed by Dr. Elmer R. Kaiser, senior research scientist at the School of Engineering and Science. The incinerator can burn tons of bulky refuse without contaminating the atmosphere. Six tons of refuse are reduced to 120 pounds of clean ash that is ideal for land fill.

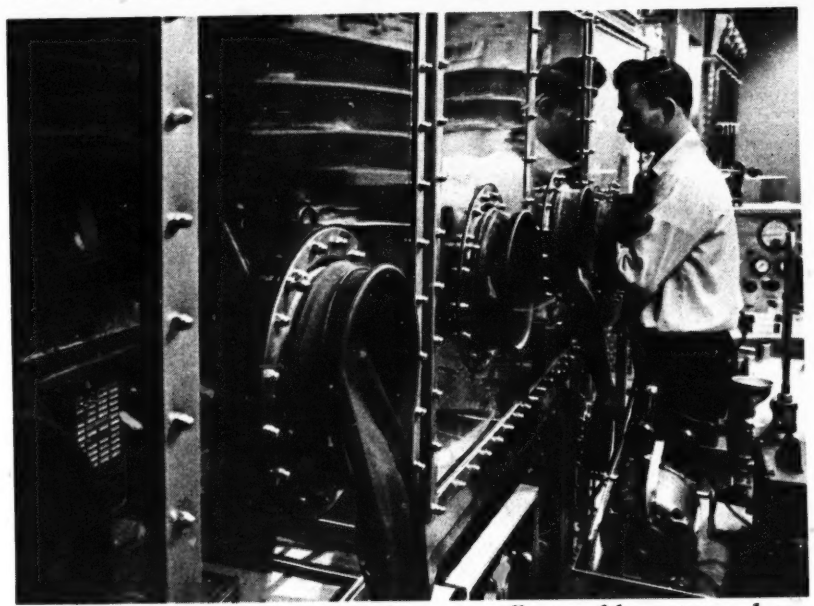
At the Medical Center several projects have focused on effects of air pollution on humans and animals. One study, carried on since 1963 by Dr. Roy Albert of the Institute of Environmental Medicine, is concerned with the mechanisms that rid the lungs of inhaled foreign particles, and with the effects of inhaled pollutants on these clearance mechanisms. Such studies of lung function represent a new area of medical research.

Clean water

Despite the fact that the Hudson River is one of the major waterways of the country, surprisingly little is known about the physical or biological characteristics of the river, the last biological survey having been conducted in 1938. The Institute of Environmental Medicine in collaboration with the Departments of Biology and Geology of the Graduate School of Arts and Science initiated an ecological study of the river sediments. Biological studies were concerned primarily with the classification of marine life in the river.

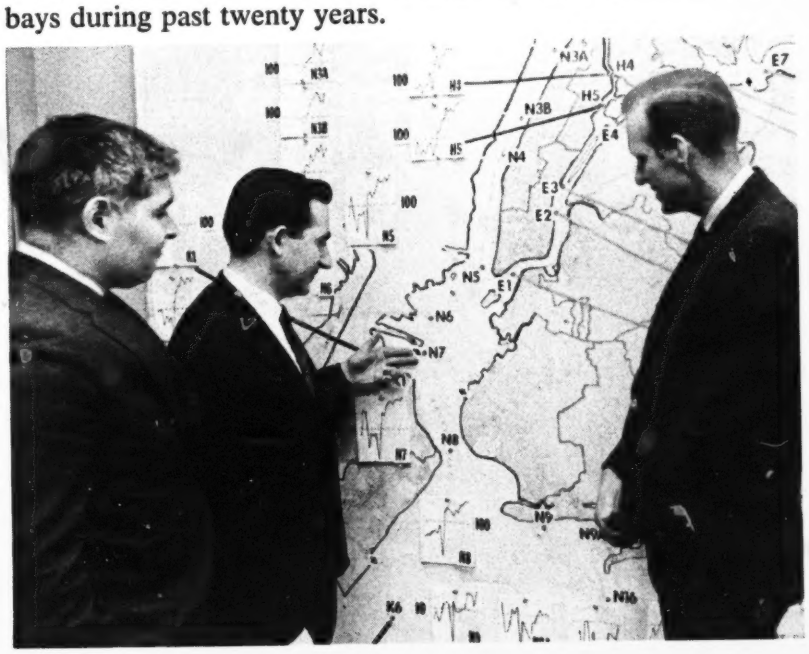
Dr. Alan Molof, Associate Professor of Civil Engineering, is directing a study of physical, chemical, and biological factors affecting pollution in the waters of New York Harbor. Information from the study will materially assist New York City's program for pollution control in harbor waters, so that these waters and adjacent waterfront property may be used safely for recreational activities. The project is one of a long series of research studies by University engineers and scientists under a 30-year-old agreement to help the city with its problems of water pollution and supply.

In another project, sponsored by the Federal Water Pollution Control Administration, the Department of Civil Engineering is seeking ways to neutralize toxic effects of light metal wastes (magnesium, calcium, sodium, etc.) on the purification of sludge in the city's vast outpouring of sewage. Such research provides fundamental information important for the planning and construction of future sewage treatment facilities.



In these environmental chambers the effects of long-term, low-level exposure to air pollutants is tested on generations of laboratory rats who are born, live, and die in controlled conditions.

Raoul R. Cardenas, Jr., Alan H. Molof, and Erick R. Gidlund of the Department of Civil Engineering discuss changes of bacteria levels in New York Harbor and neighboring channels and bays during past twenty years.



Research and the Social Environment

Like our physical environment, the social environment of New York and other great cities has been befouled by its own types of pollution—pollution of poverty, slums, and racial discrimination. Various divisions of New York University have addressed themselves to this complex of social ailments.

The problems of youth

At the Graduate School of Social Work a Center for the Study of Unemployed Youth has been established under the direction of Dr. Melvin Herman and Mr. Stanley Sudofsky. It is examining all aspects of work programs for youth initiated under the Government antipoverty program. An appraisal of nine such programs, completed in 1965, contributed to the effectiveness of current and future vocational services to youth.

The Center is also conducting a five-phase study of what motivates youth to join such programs as the Neighborhood Youth Corps, how they respond to them, why many drop out, and what others hope to gain by staying in. A report on phase I is being used by program planners in the Office of Economic Opportunity and the Department of Labor.

Now in its second year, a study conducted jointly by the Graduate School of Social Work and the Sociology Department of Fordham University seeks ways of dealing with delinquency by reducing problems besetting juveniles in urban ghettos. Juvenile courts have tended to emphasize the psychology of the child rather than his circumstances. The hypothesis of the current research and training program is that causes of delinquent behavior lie as much in environment as in personality. The project at N.Y.U. is directed by Professor Charles Grosser.

Professor Isidor Chein of the Department of Psychology is engaged in a study of the causes of serious behavior problems in adolescents, ranging from school dropouts to juvenile crime, out-of-wedlock childbirth, and incidence of syphilis. He has divided the city into 1,500 geographic segments, and is examining in greatest detail how and why they vary from one another in

the incidence of deviant conduct among young people.

His research, now in its seventh year, has gone far to demolish many of the usual generalizations about juvenile behavior in large cities. It seeks to answer such questions as why heavy use of police in one area may reduce juvenile crime but in another area may bring an increase in out-of-wedlock childbirths. One aim of the project is to direct attention to potential points of attack on juvenile problems, from which the community may proceed on a sound basis to effect changes. Support comes from the National Institute of Mental Health.

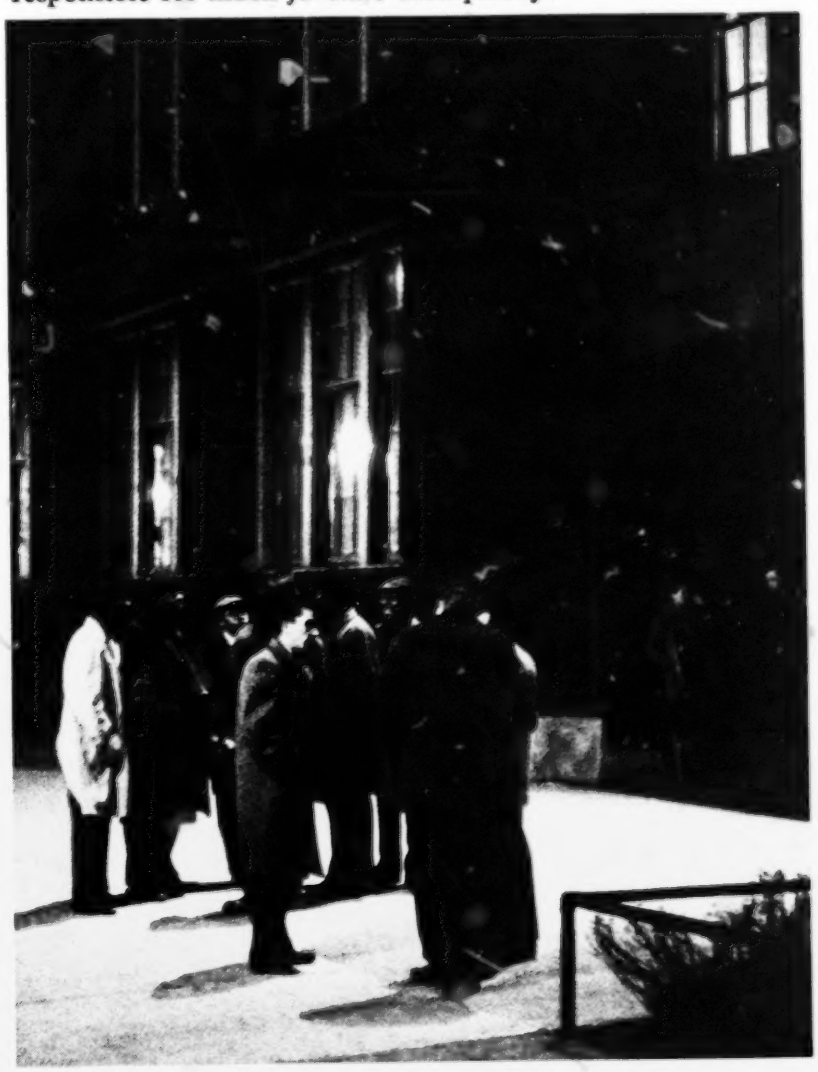
The poor of all ages

Project Labor Market, a research study at the Graduate School of Business Administration, is exploring ways in which the city can relate its own efforts to help the poor find and hold jobs to those of other public institutions and of business. The research, carried out under the direction of Dr. Oscar Ornati of the Graduate School of Business Administration, is divided into two phases. The first looks at how the poor can be helped to get jobs, the second at how the number of jobs in which the poor are employed may be increased. In order to ensure maximum relevance, Project Labor Market has developed its own grassroots advisory committee on which representatives of poor neighborhoods serve alongside management specialists on personnel problems. Support for the 18-month study comes from the City of New York.

Another project relevant to the job market and the unemployed is under the direction of a faculty member of the School of Commerce, Professor Daniel Diamond. Dr. Diamond is concerned with the effect of hiring practices that set an educational requirement well above the demands of the job.

An examination of urban renewal in France led Professor Joseph M. Sweeney of the School of Law to a discovery of significant differences between French and American approaches to helping the poor. In a study of the French Rent Supplement practice, he found that

Research carried on jointly by the Graduate School of Social Work and the Department of Sociology of Fordham University is exploring practical ways of getting at environmental problems of the ghetto—in homes, schools, neighborhoods—that are responsible for much juvenile delinquency.



the French tend to consider the needs of the family and of children on an individual and personal basis in situations where American planners tend to think in terms of massive and impersonal urban renewal. Funds jointly supplied by government and private industry put money into the hands of the poor for the payment of rent in better apartments, for example, rather than putting it into the hands of builders of housing and slum clearance projects. Professor Sweeney is currently working out implications of this French policy for American cities.

Decaying cities

In research begun last year, Professors Dick Netzer and Ralph Kaminsky of the Graduate School of Public Administration are exploring what may be done to make older cities in metropolitan regions (the "rotting cores" of megalopolis) more satisfactory places of residence for more people. Two related problems receiving emphasis are (1) that the large numbers of poor in older cities have needs that will continue, and for which new solutions must be found; and (2) that the attractiveness of older cities must be improved to the point where middle class people will prefer them over suburbs. The research is supported by the Regional Plan Association.

In research backed by the Regional Plan Association, Professors Dick Netzer and Ralph Kaminsky and Research Scientist Katherine Strauss of the Graduate School of Public Administration are exploring ways to stop deterioration of older center-city areas, make them desirable places to live and work.

Research Applied to the Problems of Government

The year 1965 saw completion of a comprehensive study of New York City finance by faculty members of the Graduate School of Public Administration. Conducted for New York's Temporary Commission on City Finance, the study was the first made of any city's finances using all the methods of economists. Its findings were immediately applied by Mayor Lindsay and his administration in fiscal planning for the city.

Hard look at fundamentals

In his introduction to the published report *(Financing Government in New York City, 1966),* Project Director Dick Netzer provided a thoughtful definition of the limits within which academic research in public affairs may best be pursued. "University scholars," he writes, "can best serve their communities by standing back a bit from day-to-day policy considerations and taking a hard look at fundamentals, at the setting within which public policy decisions must be made, and at longer run considerations. The maximum university contribution can be made if the research begins with hypotheses to be explored rather than conclusions to be documented."

Each week during the academic year executives in New York City departments of fire, police, hospitals, and a dozen other areas attend a seminar at Washington Square to study aspects of city government, and to discuss mutual problems with their peers. This is the Executive Development Program for the City of New York, conducted by Professor Sidney Mailick of the Graduate School of Public Administration. From these sessions the participants take new knowledge and insights back to their jobs of running the gargantuan municipal services of New York City.

The Program also serves as a testing ground of research aimed at improving teaching methods and methodology for public administrators at state and city levels. Its findings have contributed to the writing of HR 5989, a bill introduced in Congress last February to provide federal aid for professional training in the public services.

In the Executive Development Program for the City of New York, municipal executives discuss common problems with peers in other departments. The program has developed and tested better teaching methods for training public administrators at state and city levels.

New approaches to in-service training enable city executives to apply new insights to work of running New York's municipal services.

Equalizing the vote

In 1965 and 1966 a major reapportionment study of New York State was completed by an advisory council to the state legislature under the chairmanship of Associate Dean (now Dean-elect) Robert B. McKay of the School of Law. The study was of major importance in implementing in New York State the principle of equal representation set forth by the Supreme Court. Attainment of this standard of equality is important for the urban citizen, for it has helped to ensure the equality of his representation in state and national legislative bodies and to reduce the disproportionate power of rural areas. Several members of the School of Law faculty are also engaged in research relevant to the work of the Convention that is considering a new constitution for the State of New York.

Perhaps the oldest continuing research associated with the University's Law Center is the national survey of delays in bringing personal injury cases to trial, conducted by the Institute of Judicial Administration, an independent legal research group affiliated with the Law Center. Now in its fifteenth year, the project issues an annual Calendar Status Study, documenting delay periods reported from 100 representative courts. Allen Harris, director of the Study, reports that the yearly pinpointing of delays in specific judicial districts stimulates newspaper comment throughout the country, and has moved a number of courts to adopt improved methods of handling personal injury litigation.

Urban areas suffer most from "the law's delay." In the 1966 survey, the 18 courts reporting delays of more than 30 months were almost without exception urban (including those in four of New York City's five counties). Of the 27 reporting delays of 12 months or less, 21 were situated in counties with populations of under 500,000.

Dean-elect Robert B. McKay of the School of Law and a colleague discuss voter representation in New York State. A reapportionment study conducted in 1965-1966 under direction of Dean McKay was of importance in implementing principle of equal representation set forth by the Supreme Court.

Research Contributes to Justice and the Rights of Individuals

Many poor people awaiting trial must go to jail and suffer loss of jobs and homes simply because they cannot afford bail. In the Manhattan Bail Project, launched experimentally in 1961 and financed by the Vera Foundation, University law students interviewed prisoners and made recommendations to the courts on whether they should be released on their own recognizance. Project findings were so conclusively favorable that the program was adopted by the courts in New York and has been approved by Congress for application in federal courts. A similar and more recent study has recommended a more extended use of the summons in lieu of arrest for lesser offenses.

Licensing practices and procedures in New York City formed the subject of research conducted at the School of Law last year by Professors Norman Dorsen and Milton M. Carrow, with support from the Walter E. Meyer Institute of Law. Their research is relevant to the question of the right of individuals to engage in occupations and businesses under the laws of the city. It may be used as a pilot study for a larger exploration of licensing practices throughout the metropolitan area.

Criminal justice

At a time when national attention focuses on the rights of persons accused of crimes, the Institute of Judicial Administration is serving as secretariat for a study of criminal justice sponsored by the American Bar Association. Begun in 1964, the project examines every aspect of criminal justice from arrest through appellate review, with the object of formulating and recommending standards. The preliminary report resulting from the study has already influenced a bill dealing with public statements by police, brought before the state legislature last winter. To be completed in early 1968, the research is expected to have considerable impact on judicial and legal practice in New York City and other large urban areas in which the large majority of crimes take place.

With support from the Field Foundation, the School of Law in 1965 initiated a major research project on

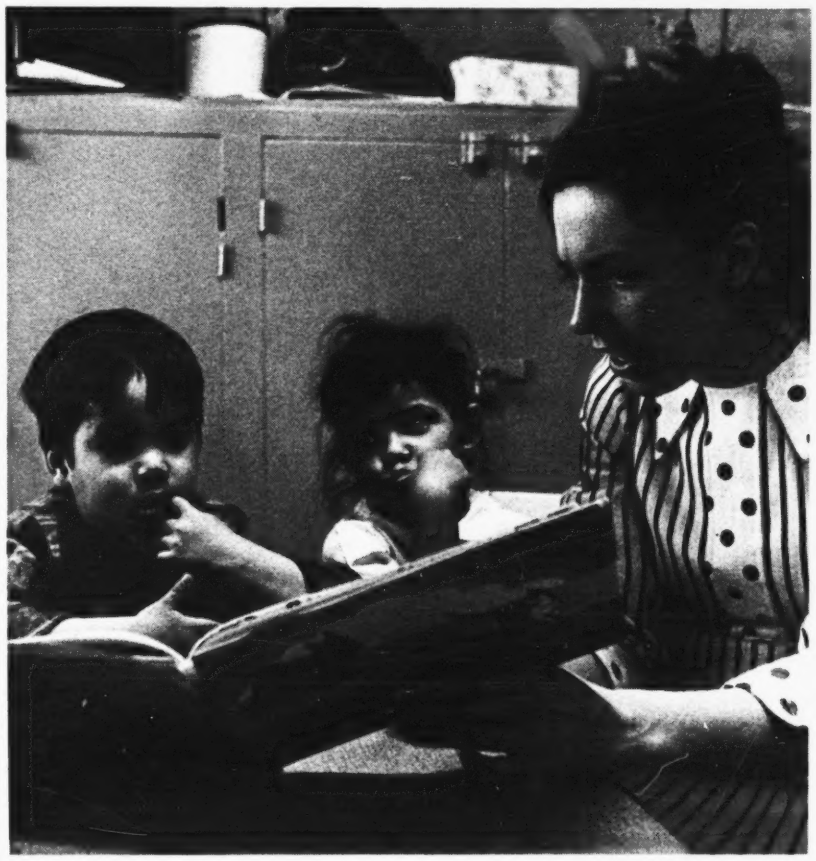
social welfare law. Though national in scope, the project has particular relevance for large metropolitan centers like New York City. It focuses on the rights of persons entitled to public benefits such as unemployment insurance, workmen's compensation, public housing, child welfare services, and training programs.

Also under study are possible infringements of a recipient's rights in the administration of social welfare programs, such as unequal distribution of benefits, the practice of "midnight" and other unreasonable searches, and release of privileged information. A *Welfare Law Bulletin* has been published by the project since mid-1966.

Law students took part in research of the Manhattan Bail and Summons Projects, which tested feasibility of using the summons instead of arrest for poor people awaiting trial and unable to produce bail. Findings were so favorable that courts in New York and elsewhere have adopted the practice.

Research Aids Public Education

Project Head Start, an early outcome of research at the Institute of Developmental Studies, is helping thousands of children overcome cultural handicaps before entering school.



The nationally known Institute for Developmental Studies was founded in 1958 and recently became part of the University's School of Education. Headed by Dr. Martin Deutsch, the Institute is currently carrying on 25 research projects that concentrate primarily upon the learning problems of disadvantaged children.

Research by the Institute was a major factor in formation of the national Head Start Program, established to counteract shortcomings of disadvantaged children. The Institute also conducts studies of language and conceptual behavior, reading ability, and auditory and visual abilities, with both normal and brain-damaged children.

APEX

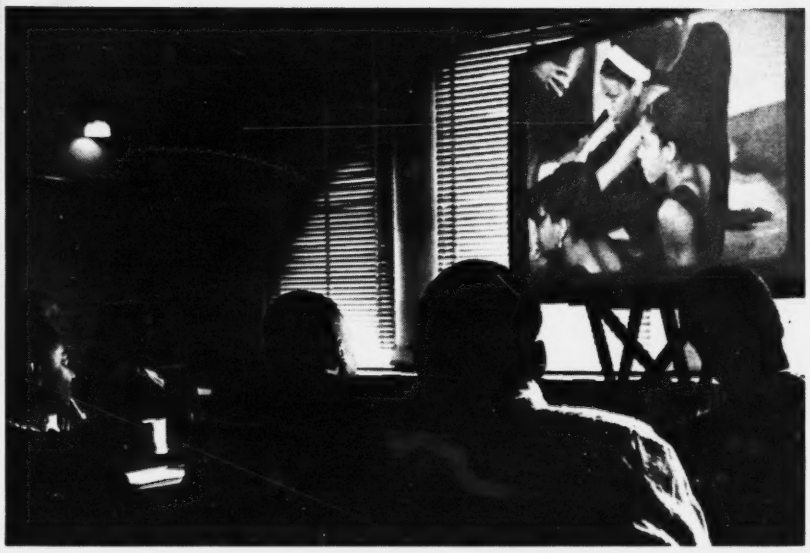
Project APEX (A Program for Excellence in Education) was inaugurated in the spring of 1965 to find out whether youth from poor economic and cultural backgrounds could successfully complete a university program and be prepared as teachers with unusual competence to work in slum schools.

In June of 1965, 60 high school seniors, all Negroes or Puerto Ricans, were selected as participants in APEX. After three months of summer study, tutoring, and counseling, they entered the School of Education in the fall, with the assurance of full financial support for the duration of their time at the University. Funding came from the Astor Foundation and the Federal Government.

Thus far 27 students survive in the program; most of these are expected to receive their degrees, with sufficient guidance and an extension of the usual four-year college course. Those graduated will be placed in slum schools, and their success as teachers will be evaluated during a year of service. The project is currently directed by Professor Virgil Clift.

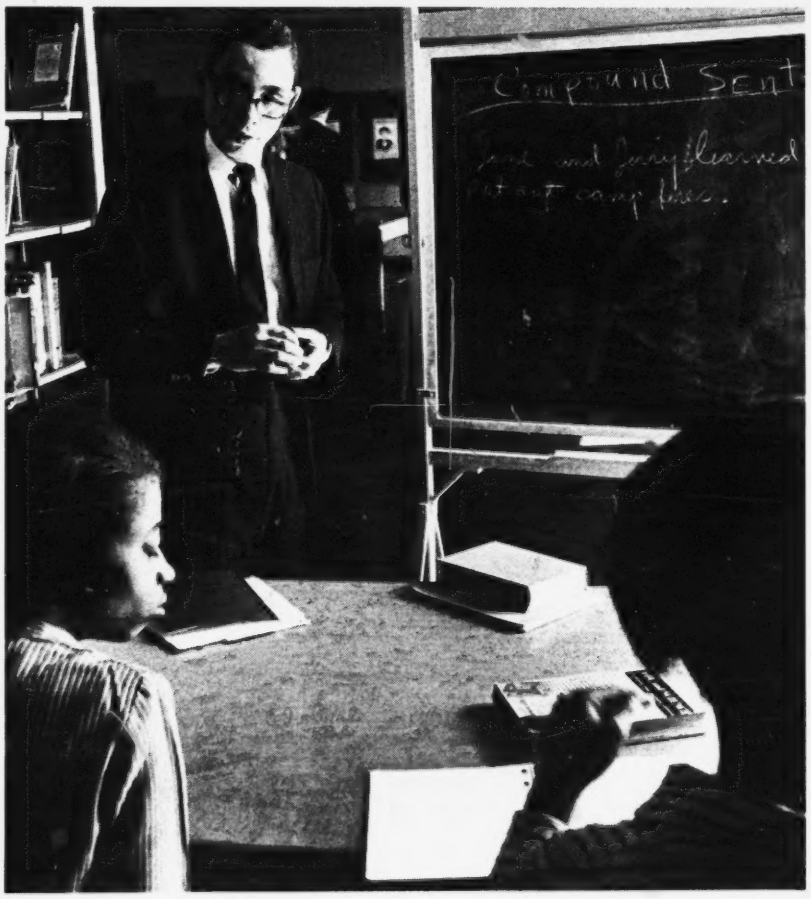
Clinic for Learning

A junior high school (Whitelaw Reid) in the Bedford-Stuyvesant section of Brooklyn is the site of another experimental research effort to deal with problems of education in the city's depressed areas. Directed by



In Project APEX, future teachers, drawn from disadvantaged backgrounds, receive full scholarship support and special preparation for work in slum schools.

Clinic for Learning uses school in the Bedford-Stuyvesant section of Brooklyn as laboratory for developing high-quality education for children in depressed areas.



Dr. John Robertson of the School of Education, the Clinic for Learning seeks to determine what a heavy concentration of professional knowledge and personnel can do to improve the quality of education and of school-community relations in a particular slum school.

During the past year nine faculty members and 50 students have been working at Whitelaw Reid. In the fall 18 superior junior high school teachers will be brought in on fellowships to become supervisors of "clusters" of students in an experiment with a new type of school organization. The Clinic for Learning project receives support from the Ford Foundation and the Board of Education.

Better teachers for city schools

The Dean of the School of Education, Daniel E. Griffiths, recently completed a comprehensive study of policy and practices concerned with the recruitment, selection, assignment, and promotion of New York City's public school personnel.

Dean Griffiths' research revealed that the whole personnel framework of the school system was attuned to the thirties, when the supply of teachers and principals greatly exceeded the demand—the opposite of today's conditions. Twenty recommendations in the research report, published last November and largely accepted by the Board of Education, were aimed at modernizing personnel selection and promotion policies to enable the city to get better teachers and administrators.

A New Careers Development Center launched this year is working out methods of giving people with little education employment in service occupations such as education and welfare, and at the same time enabling them to train for professional positions. Under the direction of Professor Frank Riessman the Center is creating a teaching program in career development and also exploring ways of fitting new types of subprofessional workers into the organization schemes of schools and agencies. Support comes from the Aaron E. Norman Fund, the van Ameringen Foundation, and the federal Office of Economic Opportunity.

Business and the Economy

The interaction of prices in different financial markets does not seem at first glance to be relevant to the interests of a single urban area. As financial headquarters of the nation, however, New York City has a large stake in new knowledge and understanding of such matters.

Thus, a proposed research program at the Graduate School of Business Administration, dealing with the impact of short-term price instability in these markets, will have significance for local corporations trying to raise funds, for local institutions trying to invest funds, and for banks, brokers, consultants, and others concerned with securities operations. For them the School's unusually strong Department of Finance represents a resource in depth of considerable value to the business community.

A project growing out of the Graduate School of Public Administration's study of city finances is examining how, within an urban area, local taxes and services influence the location and relocation of industry and residents. A corollary objective is to learn how the location of businesses and residents affects local needs for services and taxes. Findings of the three-year study, which is supported by Resources for the Future, will be applicable to urban areas generally, though New York will be used as a laboratory.

The computer is a major research tool at the Graduate School of Business Administration. Research at the School is chiefly devoted to the advancement of theory and practice in business, in itself a distinctly urban enterprise. Current studies also employ computers to explore business-oriented approaches to helping the disadvantaged help themselves.

Research and the Cultural Community

The musical history of New York City furnishes abundant resources for research in music. Here Professor Victor F. Yellin and doctoral candidates discuss score of *The Ethiope,* an American opera composed in the early nineteenth century.

Public buildings, monuments, and sculpture have always been subject to destructive elements in nature, such as sudden changes in temperature and humidity, salt air, wind and rain, and microscopic organisms. In modern times polluting chemicals spewed from factory chimneys and automobile exhausts have greatly accelerated the deterioration, especially in major cities where architectural treasures of antiquity are located.

To make stone, particularly limestone, more resistant to such decay has been a major project of Dr. Seymour Lewin at the Conservation Center of New York University's Institute of Fine Arts. With support from the Alfred P. Sloan Foundation and the Metropolitan Museum of Art, Dr. Lewin has developed a formula that will make limestone as strong as marble. Unlike previous preservative techniques which have merely held the stonework together without stopping the deterioration, the new process induces a recrystallization of limestone particles similar to the natural process by which limestone becomes marble over millions of years.

The University sometimes uses New York City's own great resources to add to the city's store of culture. Leon Edel, the Henry James Professor of English, has written the definitive biography of Henry James, the major American novelist closely associated with New York City and particularly with Washington Square. The distinguished scholars Gay W. Allen and Edwin H. Miller have made New York University nationally known as a center for research in the works of Walt Whitman, New York's—and America's—greatest poet.

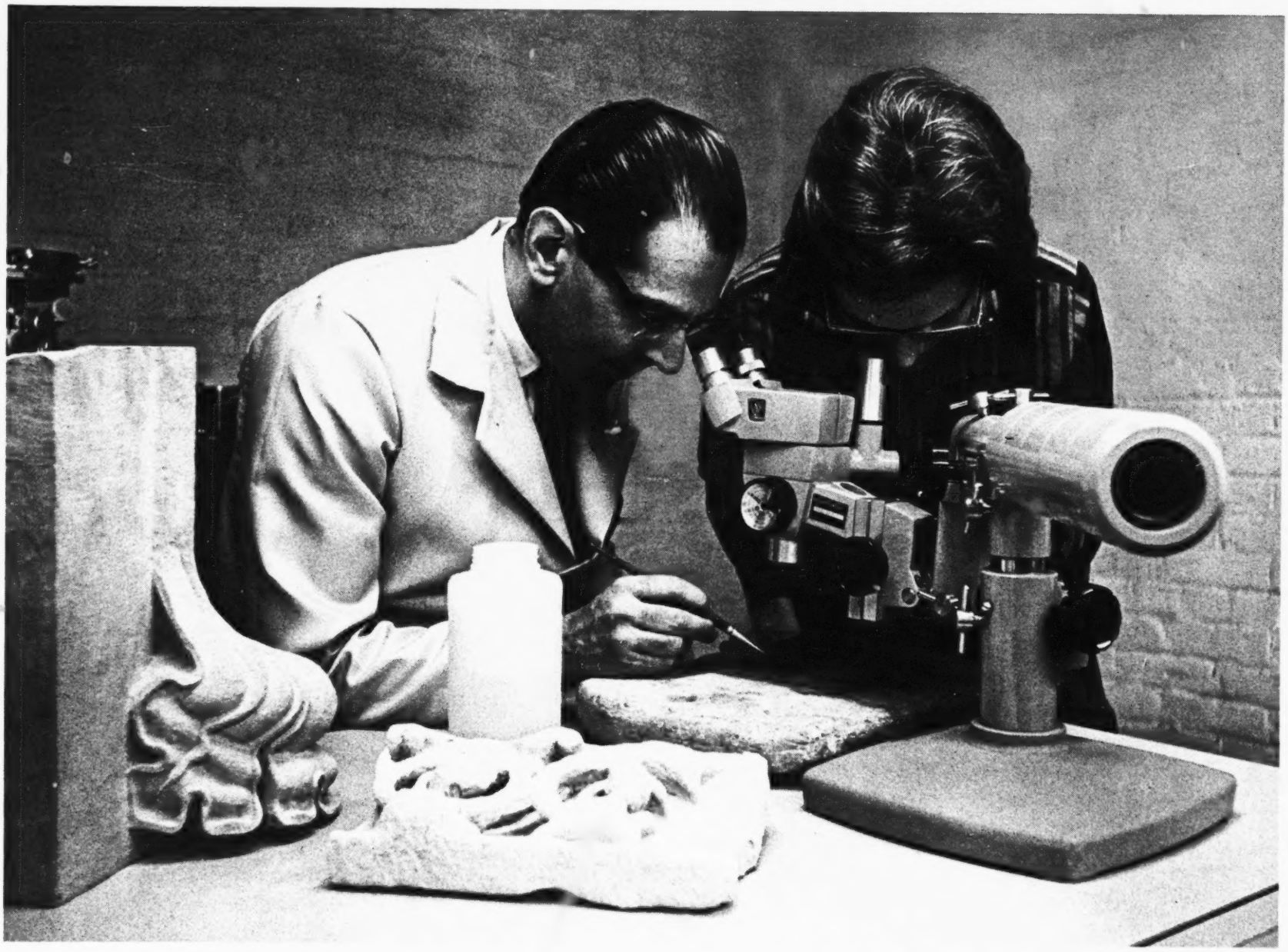
Study of the musical history of New York has uncovered rich veins of source material about the development of American music, in such areas as the introduction of opera to America and the influence of Yiddish music drama on musical comedy.

Bayrd Still, Professor of History, is the author of recognized works on the history of New York City, and is currently engaged in research on the history of the mayoralty in the city. The Department of History of which he is head is preparing a microfilm edition of the papers of Albert Gallatin, a founder of New York

University, one of the most distinguished civic leaders of early nineteenth-century New York, and Secretary of the Treasury under Jefferson and Madison.

In another history research project, graduate students search out sites of historical importance to New York City for marking as part of a program of the New York Community Trust to identify buildings and places significant for the heritage of the city.

In his laboratory at the Conservation Center of the Institute of Fine Arts, Dr. Seymour Z. Lewin and associate examine effects of formula for making limestone as hard as marble.



Conclusion

This booklet has dealt only with some of those research activities that have special importance to the city and that illustrate the complementary roles of the University and the city.

These criteria limit the examples presented to a comparatively small area of the total research activities of our students and members of the faculty. A university is by definition universal in its interests; and at New York University these interests range from the atom to the stars, and from the beginnings of time to the distant future.

The projects described here have been selected to reveal the character of New York University's urban-oriented research and the concern of the University for the improvement of urban society. They show how the University draws on the resources of New York City to develop new knowledge and also how it contributes to the quality of life in the city. These are essential characteristics of the modern urban university.